



D. Lawrence
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12.20.02

Docket No.: 50427-729

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : **RESPONSE UNDER 37 CFR 1.116**
: **EXPEDITED PROCEDURE**
Hidetaka OSAWA, et al. :
Serial No.: 09/781,224 : Group Art Unit: 1743
Filed: February 13, 2001 : Examiner: GORDON, Brian R.

For PIPETTING APPARATUS AND A METHOD OF PIPETTING A LIQUID

DO NOT ENTER

OK TO ENTER

OK AS ENTERED
BOX AF

Commissioner for Patents
Washington, DC 20231

REQUEST FOR RECONSIDERATION

RECEIVED
DEC 18 2002
TC 1700

Sir:

The following remarks are submitted in response to the Official Action mailed June 24, 2002. Claims 1-13 are now active in this application.

OBJECTION TO THE SPECIFICATION AND REJECTION OF CLAIMS UNDER 35 U.S.C. § 112, FIRST AND SECOND PARAGRAPHS

The Examiner objects to the amendment filed April 9, 2002 under 35 U.S.C. § 132, as the Examiner contends it introduces new matter since he cannot find support for "high speed signal" and "jetting means".

Claims 1-13 are rejected under 35 U.S.C. § 112, first paragraph, as the Examiner fails to find support within the specification for "high speed signal" now recited in the claims.

Claims 1-13 are rejected also under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner maintains that "high speed signal" is a relative term, not defined by the

claims, and the specification does not provide a standard for ascertaining the requisite degree. Thus, a person of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Examiner also Examiner asserts that he fails to find support within the specification for “high speed signal” and “jetting means”.

The Examiner further notes that it is unclear what the difference is between the “position changing means” of claim 1 and the “jetting means” of claim 13, as they comprise the same elements and are structurally the same element. Consequently, the Examiner requires that either claim 1 or claim 13 be canceled.

The rejections are respectfully traversed.

The function of the written description requirement is to ensure that the inventor had possession, as of the filing date of the application, of the specific subject matter claimed. See *In re Edwards*, 568 F.2d 1349, 196 USPQ 465 (CCPA 1978). The question is not merely one of literal support in the original disclosure for the questioned claim language, but of disclosure of concepts. See *In re Wilder*, 736 F.2d 1516, 222 USPQ 369 (Fed. Cir. 1984) and *In re Kaslow*, 707 F.2d 1366, 2177 USPQ 1089 (Fed. Cir. 1983).

The test for determining compliance with the written description requirement of the first paragraph of 35 USC § 112 is whether the disclosure of the present application, as originally filed, reasonably conveys to the artisan that the inventor had possession, at the time of filing of the application, of the claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. Note, for example, *In re Kaslow, supra*.

In this regard, the Examiner should be aware that it is well recognized that the disclosure need not recite the claim language in *haec verba*. *In re Smith*, 481 F.2d 910, 178 USPQ 620 (CCPA 1973).

While the Examiner states that he fails to find support within the specification for the term “high speed signal” and “jetting means”, Applicant disagrees.

As described at page 6, lines 18 to 20, the driver 21 generates a drive signal in accordance with the control signal. The linear step motor 3 moves the shaft 4 along the axis of the shaft 4 in response to the drive signal from the driver 21. That is, the drive signal is supplied to the linear step motor 3.

As further described at page 6, line 24 to page 7, line 1, the control unit 20 generates the control signal such that a pulse train signal to make the driver generate the drive signals to control the direction of movement and the speed and position the piston 2. That is, the control unit 20 controls the speed of the linear step motor with the pulse train signal (drive signal). Further, it is well known in the art that a linear step motor drives a shaft (i.e., shaft 4) by a step in response to each pulse.

Moreover, as described at page 7, line 20 to page 8, line 1, in response to a switch the control unit 20 generates the pulse signal of which pulse rate is relatively high to push the piston 2 by a short distance of about tens micron meters by the linear stepping motor 3 in step 120. This short position change of the piston 2 toward the nozzle 1a jets a drop 8a (a portion) of the liquid 8 through the nozzle 1a. The pulse signal includes pulses at a high pulse rate such that the piston 2 hits the liquid 8. The jetted drop 8a drops into the vessel 9.

That is, *to jet a drop 8a of the liquid 8*, the pulse signal must include pulses at a high pulse rate such that the piston hits the liquid 8. A person of ordinary skill in the art would clearly understand that the high pulse rate of the pulse signal (drive signal) corresponds to a “high speed signal” for the linear step motor because the linear motor drives the shaft 4 in response to each pulse in the drive signal from the general knowledge.

This point will be described more specifically with reference Modern Dictionary of Electronics, Sixth Edition pp. 975-976, HOWARD W.SAMS & COMPANY, a copy of which is enclosed. At item 4, there is explanation that a mechanical device which rotates by a fixed amount each time it is pulsed. Moreover, at item 5, there is explanation that a device which converts pulsating direct current into rotary mechanical motion. Each dc pulse rotates the stepper a certain fraction of one revolution. Further, at item 6, there is explanation that a bi-directional permanent-magnet motor which turns through one angular increment for each pulse applied to it. This is the explanation for the rotary step motor, but a person of ordinary skill in the art knows that a linear step motor operates similarly, wherein the movement is not a predetermined amount of angle, but a predetermined linear movement.

Applicants stress that a patent specification is directed to one having ordinary skill in the art. *In re Howarth*, 654 F.2d 103, 210 USPQ 689 (CCPA 1981). Accordingly, conventional knowledge is read into this disclosure, relieving Applicants of the burden of disclosing in painstaking detail that which is already known, thereby burdening the Patent and Trademark Office with cumbersome specifications. *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984); *In re Howarth, supra*.

The explanation above indicates the step movement of a linear step motor is caused by a pulse. Thus, when *high rate pulses* is applied to the linear step motor of the present invention, it corresponds to a *high speed signal*. That is, "high speed signal" is supported by the specification.

While use of "high" in "high speed signal" may be considered a relative term, as described at page 7, lines 23 to 25, the speed of the linear stepper is controlled to jet a drop 8a. If the speed signal is low, the liquid 8 stays at the tip of nozzle as a drop of which diameter increases. In the

present disclosure, "speed" cannot be defined uniquely *because it depends on the diameter of the nozzle, the viscosity of the liquid, and the temperature, etc.* Thus, in the general sense, the speed can be defined only by the jetting operation. Furthermore, a person of ordinary skill in the art, armed with the present disclosure, would understand the metes and bounds of the invention.

The "jetting means" is supported by the disclosure at page 7, line 20 to page 8, line 1. That is, the control unit 20 generates the pulse signal of which pulse rate is relatively high to push the piston 2 by a short distance of about tens micron meters by the liner stepping motor 3 in step 120. This short position change of the piston 2 toward the nozzle 1a jets a drop 8a (a portion) of the liquid 8 through the nozzle 1a. The pulse signal includes pulses at a high pulse rate such that the piston 2 hits the liquid 8. The jetted drop 8a drops into the vessel 9.

Moreover, the "jetting" is supported by the disclosure at page 8, line 23 to page 9, line 7, at page 10, lines 5 to 11, at page 12, line 21 to 24, at page 14, lines 1 to 10, at page 15, lines 16 to 20, and at page 16, lines 7 to 20.

As to a claim 1 and claim 13, Applicants disagree with the Examiner that the claims are essentially duplicate and therefore, one of the claims needs to be canceled.

Claim 1 recites:

position changing means including an actuator for changing a position of said piston with said piston holding means by a short distance with respect to said pipette holding means in response to a high speed signal to jet a portion of a liquid in said pipette through said nozzle as a drop.

In contrast, claim 13 recites:

jetting means including an actuator for jetting a portion of a liquid in said pipette through said nozzle as a drop by changing a position of said piston with said piston holding means by a short distance with respect to said pipette holding means in response to a high speed signal.

Same component

Same function + process

different names does fail to distinguish 1 from the other

what is a high pulse rate has many pulses per/sec.

does high
refer to rapid
line between pulse
or the distance/t
is

At the very least, it should be clear that the scope of protection afforded by the two recited functions are different. More specifically, while the “position changing means” is capable of jetting a portion of the liquid, its recited function is *changing the position of the piston*. In contrast, the recited function of the “jetting means” is *jetting a portion of a liquid*. Even if the Examiner considers the elements disclosed in the present application corresponding to the position changing means and the jetting means to be the same, Applicants are entitled to the different scope of protection afforded by the different functions recited in these claims in order to protect that which they regard as their invention. More specifically, there is at least a difference in the functions recited and Applicants are entitled to claim such different functions.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 102 AND § 103

I. Claims 1-3, 5-8 and 10-12 are rejected under 35 U.S.C. § 102(e) as being anticipated by Pelc et al. (hereinafter, Pelc).

However, Pelc fails to disclose the position changing means jetting a portion of a liquid in the pipette through the nozzle as a drop as defined in claim 1. Similarly, Pelc fails to disclose the step of changing position defined by claim 6, the moving means defined by claim 11, and the jetting means in claim 13.

Regarding claim 2, Pelc fails to disclose another position changing means.

Regarding claim 5, Pelc fails to disclose detecting means and the confirming means.

Regarding claim 7, Pelc fails to disclose repeated operations of changing a position of the piston to jet a desired total amount of the liquid to be measured.

Regarding claim 8, Pelc fails to disclose the step of determined the short distance in accordance with a desired amount of the liquid.

Regarding claim 10, Pelc fails to disclose the step of detecting the portion of the liquid jetted from the pipette and the step of confirming that the portion of the liquid is jetted.

Regarding claim 12, Pelc fails to disclose the feature that an amount of the drop is determined in accordance with the size of the nozzle, the short distanced and the short time interval.

Anticipation, under 35 U.S.C. § 102, requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983).

Thus, independent claims 1, 6 and 11, as well as dependent claims 2, 3, 5, 7, 8, 10 and 12 are patentable over Pelc as each element of the claims is not found in the reference, either expressly described or under principles of inherency.

II. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc in view of Kelly et al. (hereinafter, Kelly).

However, as claim 4 depends from claim 1, and claim 9 depends form claim 6, claims 4 and 9 are patentable over Pelc also, even if considered in view of Kelly, which also fails to disclose the position changing means and step in claims 1 and 6.

In view of the above, the allowance of claims 1-12, as well as claim 13, is respectfully solicited.

CONCLUSION

Accordingly, it is urged that the application is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an

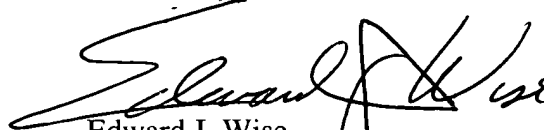
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interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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